

Patent Abstracts of Japan

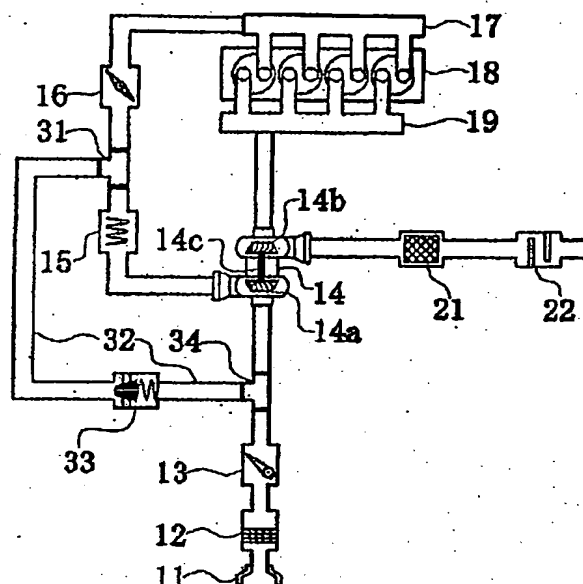
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TITLE : INTAKE AIR COOLING DEVICE FOR
INTERNAL COMBUSTION ENGINE
WITH SUPERCHARGER



ABSTRACT : PROBLEM TO BE SOLVED: To provide an intake air cooling device for an internal combustion engine with a supercharger, capable of increasing output per unit exhaust quantity and improving thermal efficiency in the internal combustion engine by dynamically lowering the temperature of intake air discharged from the supercharger in the internal combustion engine with the supercharger, to supply high density air to a cylinder 18.

SOLUTION: Excess intake air discharged from the supercharger is taken out of a discharge intake air takeoff passage 31 provided on the discharge side of an intercooler 15, and the supercharger discharge intake air lowered in temperature being adiabatically expanded by differential pressure generated upstream and downstream of a pressure actuated valve 33 provided on the way of a return passage 32 and connected thereto, when passing the pressure actuated valve 33, is mixed with intake air from an intake port 11 through a discharge intake air converging passage and taken again into the supercharger 14. The required quantity is supplied to a cylinder 18, and the excess intake air is returned again and lowered in temperature to positively suppress the temperature rise of the supercharger discharge intake air and the abnormal rise of pressure.

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